

## What is the difference between a brushless fan and a regular fan?

Motors that are brushless are considered more efficient than brushed DC-motors. This means for the same input power, a brushless motor will convert more electrical power into mechanical power than a brushed motor.

Brushed motors have short lifetimes due to the wear of the brushes and commutators. Typically brushes will need to be replaced at some point.

Brushless motors do not use commutation parts so they do not suffer from this.

There are other differences but simply said, Brushless motors offer other advantages over brushed DC-motors, including higher reliability, longer lifetime and overall better performance.

## What is the difference between 300 Watt and 500 Watt fans?

Wattage is a measure of power, Higher wattage means more power. More power usually means a more robust performance. Therefore in most circumstances a 500 watt fan will perform better than a 300 watt fan.

## What is the CFM?

CFM stands for cubic feet per minute. It is a measurement that describes the volume of air, measured in cubic feet, a fan moves in one minute. The larger the number, the more air it can move.

## Do I need a relay?

No you do not need a relay. The Spal Brushless fan has a soft start feature that eliminates voltage surge or spikes at start up. This eliminates the need of a relay.

**When I enegize my fan it jumps slightly, but nothing happens, so I quickly disconnected it.**

This is a self protection feature of the fan called the park phase. The fan will check to see if the blade is locked or unable to turn. Leave the fan connected and the fan should start up in about 3-5 seconds.

I hooked up the fan to 12 volts but nothing happens.

The Spal Brushless fan operates on PWM technology. Simply hooking up to 12 volts will not operate the fan. The fan needs a PWM signal to operate.

## What is PWM?

Pulse Width Modulation (PWM) is a technique used to control analog devices, using a digital signal. Imagine you have a ceiling fan in your home but without any speed controller. Turn it on and it'll gradually achieve max speed, or you can turn it off. Now, if I ask you to run the fan at 50% of its max speed. Is it possible without a speed controller?. The answer is yes. The fan will not instantly achieve the max speed the moment we turn it on and neither will it immediately come to a halt as we turn it off. Now imagine if you could turn on the switch, wait until you see that the fan has achieved 50% of the speed, and turn off the switch. Switch it on again as it starts to slow down and again turn it off at 50 %. If you could do this say about a 100 times a second the fan would run at 50% continuously. There's a little more to it but that's the basics of PWM.

### So what is needed to provide a PWM signal to the fan?

You will need to install the Spal temperature sensor SBL-TS-195P. You can also use an after market ECU that provides a -PWM output.

### Can I use my Holley EFI system to control my Spal Brushless fans?

Yes , The HP, Terminator and Dominator EFI have a -PWM output. The Sniper does not.

## What is the frequency I use on my programmer?

A frequency of 128hz will work just fine.

## How do I hook it up?

We provide a wiring diagram with the wiring kit. You can also find the wiring diagram on our web site. [https://wizardcooling.com/product\\_images/uploaded\\_images/brushless-fan-wiring.png](https://wizardcooling.com/product_images/uploaded_images/brushless-fan-wiring.png)

## What fuse do I use?

300 watt fans require a 40amp maxi Fuse w/holder. 500 watt fans require a 50amp maxi fuse w/ holder. You will need to purchase them at any auto parts store.

